

# Climate Change and Cycling



*Cycle  
Bedford*



*Cycling  
can help  
save  
the planet*

as well as your health

***This short leaflet on Climate Change and cycling is taken from Cycling Campaign for North Bedfordshire's Newsletter No 73 of October 2015.***

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## **Introduction**

Climate change is the most important issue of our time and the meeting in Paris in December 2015 will be the last time for governments around the world to agree on targets to reduce global emissions to a level that can meet the goal of holding global warming to below 2°C compared with the pre-industrial temperature. Virtually all developing and developed countries now accept the need for a cap on emissions.

Failure to act now will mean in the future an even bigger refugee crisis than the current one.

**Global warming is the responsibility of all residents**

However the solution is not just up to governments. There are many things that can and are being done at the local level by local authorities such as Bedford Borough Council but in the end all residents must also take responsibility.

Cycling will not solve the problem but using this mode of transport for short distances, of which more than 50% of journeys are less 5km, will go some way to reducing emissions in our towns

and villages. At the same time it will have a significant effect on the health of our residents.

The leaflet looks at the causes, factors contributing to it, its effects, other effects and in terms of sustainable transport, and in particular cycling, what can be done by local authorities, businesses and residents.

The seriousness of Climate Change was endorsed by President Obama on his recent visit to Alaska.

He said *"Climate change is probably one of the biggest challenges our planet faces. If there is one thing that threatens opportunity and prosperity for everybody, wherever they live, it's the threat of a changing climate."*

**Global warming has to be held to a rise below 2°C**



# Climate Change and cycling

What is Climate Change?

What causes Climate Change?

What factors contribute to Climate Change?

What are its effects?

What is being done Internationally?

What is being done Nationally?

What is being done Locally?

What can residents do?

What else does air pollution cause?

# What is Climate Change?

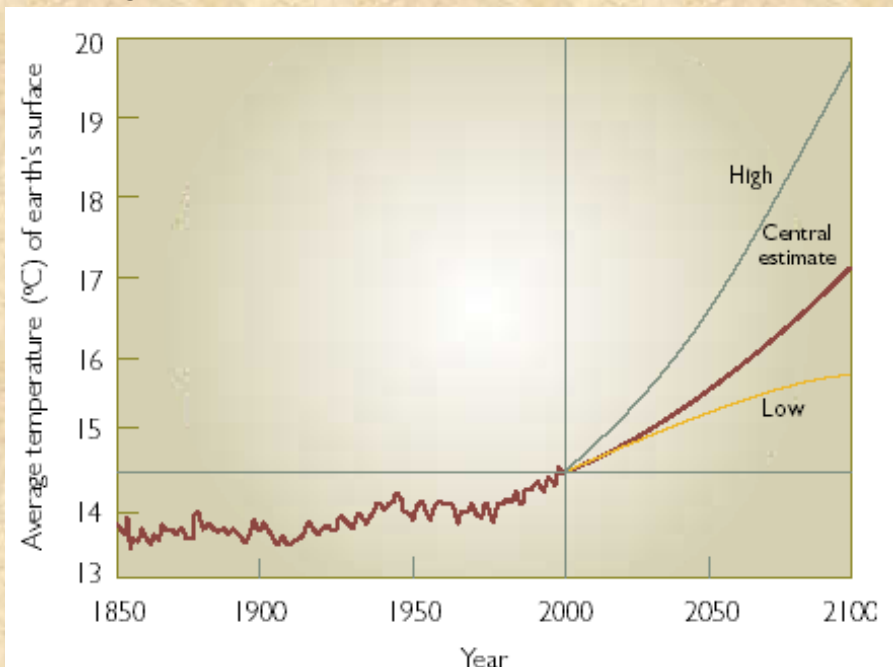
Climate change and global warming are the names given for the gradual increase in temperature of the surface of the Earth since the industrial revolution. Many people, however, confuse the difference between the weather and climate change.

Weather is what you see outside on any particular day, that is, it reflects the short-term conditions of the atmosphere whereas climate is the long-term average daily weather for an extended period of time at a certain location.

The difference between the two is illustrated in the short National Geographical video:-

[https://www.youtube.com/watch?v=cBdxDFpDp\\_k](https://www.youtube.com/watch?v=cBdxDFpDp_k)

Over the last century the Earth has warmed by nearly 1 degree Celsius and potentially could rise a further 4 degrees by the end of the century. If this happened it would be devastating for our planet and ecosystems unless urgent action is taken to reduce the impact.



*Global temperature record since instrumental recording began in 1860 projected to 2100 - IPCC*

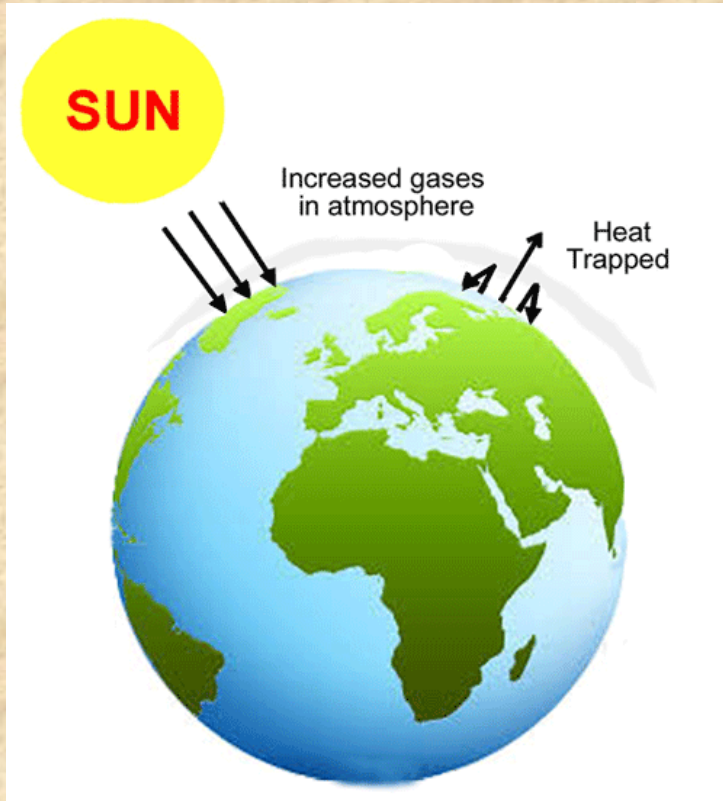
Limiting the temperature rise to 2 degrees, instead of 4 degrees, would make climate change more manageable, while avoiding some potentially devastating effects.



# What causes Climate Change?

Climate change is the result of increased levels of carbon dioxide and other gases, mainly methane and nitrogen oxides being entered into the atmosphere since the pre-industrial era, driven mainly by economic and population growth .

The gases trap heat in the atmosphere to give the so-called 'greenhouse effect'.



The amount of carbon dioxide in the atmosphere from burning fossil fuels and other activities including population growth has dramatically increased since the industrial revolution, going up by about 38%, 26% since 1960. The global value expressed as carbon dioxide in parts per million (ppm) was 398.32 on 15 October 2015 measured at the Mauna Loa Observatory in Hawaii USA. Because of its long lifespan, as more carbon dioxide is emitted the amount will continue to rise. The extra carbon dioxide will trap more and more of the sun's heat, and warm our climate. As the atmosphere warms, the amount of water vapour it holds increases - which further adds to the warming effect.

# What factors contribute to Climate Change?

## CARBON FOOTPRINT \*

<b>Transport</b>	<b>- 32%</b>
<b>Domestic</b>	<b>- 34%</b>
<b>Industrial</b>	<b>- 33%</b>
<b>Agriculture</b>	<b>- 1%</b>

**\* Bedford  
2013 Data**

Emissions\* emitted for various modes of transport based on a 5km round trip (in kg CO<sub>2</sub>) are:

Car (1.4 – 2.0 litre)	- 1.1
Car (>2.0 litre)	- 1.7
Bus	- 0.5
Bicycle	- Zero

Every trip\*\* made by bicycle will reduce an individual's carbon footprint by:-

Up to 0.82 tonnes of carbon dioxide per year

Equivalent to 8.4% of a typical individual's total carbon footprint of 9.8 tonne from all sources.

\* Values obtained using [www.co2calc.co.uk](http://www.co2calc.co.uk)

\*\* based on one return journey of 5km each way every working day (taken as 240 days).

# What are the effects of Climate Change?

A few of the global warming effects, particularly since the 1950s, are:

## Natural disasters

There has been a significant increase in natural disasters around the world including forest fires, droughts and flooding causing major disruptions to crops and wildlife as well as humans.

## Sea temperatures

The temperatures at the surface, above the surface and in the depths of the ocean are increasing.

## Ocean acidification

Oceans are becoming more acidic due to the absorption of carbon dioxide. This is already preventing shell formation and causing the shells of others to dissolve. This will wipe out many species and effect the fishing industry.

## Sea levels

Sea levels have risen by about 10cm around the UK, and about 17cm globally with the rate of rise increasing in recent decades.

## Melting glaciers

Glaciers all over the world are retreating. This has been observed in the Alps, Rockies, Andes, Himalayas, Africa and Alaska.

## Reduction in Arctic ice

Arctic sea-ice has been declining since the late 1970s, reducing by about 0.6 million km<sup>2</sup> per decade - an area about the size of Madagascar.

## Shrinking ice sheets

The Greenland and Antarctic ice-sheets, which between them store the majority of the world's fresh water, have both started to shrink.

## Changes in rainfall

Rainfall patterns are changing across the globe. Wet places are becoming wetter and dry areas are becoming drier. There are also changes between seasons in different regions.

## Global inequalities

There will be a huge increase in inequality between different countries of the world.

## Bio diversity

Changes and losses in bio diversity due to destruction of natural habitats.



# What is being done Internationally?

The first serious look at what was happening with the climate started with a series of United Nation Conferences in the 1970s following a number of highly publicised climatic and environmental events with disastrous consequences which occurred during the 1960s and 1970s. These demonstrated the fragility of world food production and trade systems and their dependence on the Earth's climatic system.

This resulted in the First World Climate Conference in 1979 to assess the state of knowledge of climate and to consider the effects of climate change variability and change in human society.

The First Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) set up in 1988 was reviewed at a Second World Climate Conference in 1990. The outcome was a call for a global treaty on climate change resulting in a United Nations Framework Convention on Climate Change.

The global treaty was opened for signature at the United Nations Conference on Environment and Development (the Earth Summit) in Rio de Janeiro in 1992. The message was clear, we cannot continue to live in the way we are. The problems - social, economic and environmental - are so strongly linked that the solution, it was agreed, must be to tackle these issues together to achieve 'sustainable development'. One of the programmes developed was '**Agenda 21**', a blueprint for global action to affect the transition to sustainable development in the 21st century.

In 1997 in Kyoto, Japan, the '**Kyoto Protocol**' was adopted although it did not enter into force until 2005. The Protocol committed the European community and 37 industrialised countries to stabilise greenhouse gas emissions by setting binding targets to give an average five percent reduction compared to 1990 levels over the period 2008 to 2012. The EU countries collectively made an agreement to reduce the levels by 8% under the EU burden sharing agreement while the UK undertook to reduce emissions by 12.5%.

In Doha, Qatar in 2012, the **Doha Amendment** to the Kyoto Protocol was launched taking a second commitment period from 2013 to 2020 inclusive. For this second commitment period, 38 developed countries, including the EU and its member States and the UK (including Gibraltar) agreed to an independent quantified economy-wide emission reduction target of a 20% compared with 1990 levels (base year).

However the countries committed cover only 14% of global emissions.

Since 1988 the Intergovernmental Panel on Climate Change (IPCC) has issued regular Assessment Reports and other reports on the state of knowledge on climate change. The latest one, the Fifth Assessment Report, was finalised in November 2014.





*Gathering of Bedford cyclists on Saturday 5 December 2009 to draw attention to the climate change talks about to take place in Copenhagen*

UN negotiations have been underway since 2007 to develop a new international climate change agreement to replace the Kyoto Protocol in 2020 that will cover all countries. These resulted in the mute Copenhagen Accord (2009), Cancún Agreements (2010), Durban outcomes (2011), Doha Climate Gateway (2012) and the Warsaw decisions (2013).

## Paris Summit

At the Paris summit in December 2015, potentially 196 countries, including the main carbon emitters US and China, will meet to sign a new climate change agreement.

The agreement will bind countries to reduce global emissions to a level that can meet the goal of holding global warming to below 2°C compared with the pre-industrial temperature.

The EU's contribution to the new agreement will be a binding, economy-wide, domestic greenhouse gas emissions reduction target of at least 40% by 2030.

# What is being done Nationally?

The British government's first climate programme was launched in 2000 following on from its commitment given at the 1992 Rio Earth Summit.

One of the seven main strategies of the programme was to cut emissions from the transport sector.

The 2000 programme was updated in 2006 following a review in 2004.

After cross-party pressure over several years, led by environmental groups, a **Climate Change Act** was introduced which became law in 2008. This put in place a framework to achieve a mandatory 80% cut in the UK's carbon emissions by 2050 (compared to 1990 levels).

It should be noted that in 2008 the UK was the world's 9th greatest producer of man made carbon emissions.

A guide was issued to local councils in 2010 on 'Adapting to Climate Change'. One of the top tips suggested under sustainable transport was to help to ensure that cycle paths are provided and well maintained to encourage a reduction in car dependency.

In a government public attitude survey in 2011 to climate change and the impact of transport and respondents willingness to switch from travelling by cars to other modes, 44% stated that they were willing to use public transport more often, 27% to switch to cycling and 55% to walking.

In September 2014 in readiness for the Paris summit a report was issued under the coalition government a 'Paris 2015 - Securing our prosperity through a global change agreement'.

## Cycling

Over the last three decades successive governments have issued many papers, etc involving cycling but not many have been followed through to the present time. These range from the National Cycle Strategy (1996), White Paper - A new deal for transport (1998), National Cycle Strategy Revival (2001), White Paper - The future of transport (2004), Walking and Cycling - An action plan (2004), Cycling England (2005-2011), to Low Carbon Transport - A greener future (2009).

The more recent successful strategies have been the introduction of the 'Bikeability' cycle training scheme from the Road Safety Strategy - A safer way (2009), the Cycle to Work Scheme and Cycle to Work Guarantee (2009) and the Local Sustainable Transport Fund (LSTF) from the White Paper - Creating Growth, Cutting Carbon (2011).

The previous government has issued a number of grants for cycling but many have been given only to specific towns and cities leaving most of the country devoid of funding for cycle infrastructure. The LSTF funding is now near its end.





*The Rising Tide by Jason Decaires Taylor. The four proud horses and their riders on the Vauxhall foreshore of the River Thames during September 2015 with the Houses of Parliament in the distance. The sculptures are concealed and revealed by the daily ebb and flow of the tide. Taylor has said he is very concerned with all the associated effects of climate change and the state of the seas and the piece symbolises the origins of industrialisation and the damaging focus just on work and construction. He hopes that the politicians across the river will take note. [Note the oil derrick faces of the horses].*

In 2013 the All-Party Parliamentary Cycle Group issued a 'Get Britain Cycling' report and this led to a number of debates in Parliament on cycling and cycling safety and a draft Cycling Delivery Plan in October 2014.

A number of informal road shows were carried out by the Department for Transport and in March 2015 responses on the topics raised were published.

The Infrastructure Bill which became law during 2015 calls for a Walking and Cycling Investment Strategy (WCIS). A Roads Investment Strategy (RIS) for 2015-2021 was published in March 2015 and provides a format which the CWIS is likely to follow.

# What is being done Locally?

Bedford Borough Council first started on the road to improving the environment in 1990 with the formation of an Environmental Development Team to promote environmental issues and develop environmental policy. An Environmental Strategy and Action Plan which included cycling was launched in 1992.

Following on from the recommendations of the 1992 Rio Earth Summit a roundtable of representatives of all groups interested in the environment was formed in 1994 called **Local Agenda 21**. A comprehensive action plan was put together and regular meetings held with stakeholders, including CCNB, until the early 2000s.



The council was one of the early signatories of the **Nottingham Declaration** launched in October 2000 committing them to work towards reducing emissions.



All local authorities had to have a Development Framework to replace their local plan and one of the documents produced was **The Core Strategy and Rural Issues Plan** adopted in 2008. This contained Policy CP26 - Climate Change and Pollution. As a result of the government's 2008 Climate Change Act a **Climate Change Strategy** 2010/12 was put in place. This has been refreshed recently to include the year 2015/16. The document can be accessed from:

[http://www.bedford.gov.uk/environment\\_and\\_planning/sustainability/what\\_is\\_the\\_council\\_doing/climate\\_change\\_strategy.aspx](http://www.bedford.gov.uk/environment_and_planning/sustainability/what_is_the_council_doing/climate_change_strategy.aspx)

The strategy has two priorities; tackling climate change and using resources efficiently.

Under the first priority one of the objectives is to tackle '**Emissions from Transport**' by:

- Reducing greenhouse emissions from vehicles through transport planning and the use of alternative fuels and technologies;
- Improving and promoting a safe and convenient walking, cycling and public transport network; and
- Ensuring that new developments are located and designed to encourage the use of public transport, walking and cycling.

The council works with residents, communities and local businesses to encourage the use of more sustainable methods of transport and for staff has a '**Green Office Guide**' which advises how to commute to work in a more sustainable way.

It also demonstrates its commitment to increasing the amount of cycling



in the borough by meeting all five commitments of the Department for Transport's '**Cycle to Work Guarantee**'. The council has also signed up to the Government's '**Cycle to Work Scheme**' that allows employees to claim a voucher to buy a new bike, the cost of which is paid back with tax free deductions from the employee's salary.

Pool bikes are available that can be borrowed for business use to enable staff to cycle to meetings and make site visits.

## **Climate Local Bedford**

in recognition of the important role that local authorities have in tackling climate change, Bedford Borough Council signed the Climate Local Commitment on 26 October 2013,

Cycling is included in the following two commitments:

- (1) To promote greener travel behaviours and encourage use of more sustainable modes of transport within the council and wider community with the justification to support multiple corporate objectives to support our local economy, reduce carbon emissions, improve air quality, reduce congestion, and improve health and road safety.
- (2) To support the sustainable development process by continuing work with internal and external partners to ensure new developments are accessible by sustainable modes of transport with the justification to ensure transport remains considered in Planning Policies and to encourage developers to;
  - 1) build in locations that encourage walking, cycling and Public Transport; and
  - 2) include infrastructure to encourage walking, cycling and Public Transport.

## **CCNB Comments**

The council has many good policies in place for cycling although there have been some concerns over the years relating to the discharge of planning conditions.

In spite of huge budget cuts imposed on it by the government, a lot has been done on the ground for cycling over the last few years in terms of improving cycle infrastructure and the number of cycle stands provided .

CCNB's priorities for the council are to:

- Complete the missing links in the town centre cycle network and improve those routes which still have some safety concerns;
- Make roads safer for pedestrians and cyclists by continuing the introduction of 20mph speed limits into all residential areas, schools and shopping areas; and
- Encourage all schools to take up 'Bikeability' cycle training.

# What can Residents do?

Solving climate change can not be left solely to big businesses and international and national governments or even local governments such as Bedford Borough Council. It is also the responsibility of everybody including all residents living in the borough.

Cycling instead of using a car can not solve the problem but it can go someway in helping to reduce carbon dioxide emissions to save the planet and the toxic nitrogen oxides to improve peoples health.

In the borough 55% of car trips are less than 5km, distances easily achieved by bicycle. A catchment area for 5km comprises the whole of the urban area of Bedford and Kempston and neighbouring suburbs of Bromham, Biddenham, Clapham, Elstow, Shortstown and New Cardington.

All of this area, mostly flat terrain and compact is within a 15 minute cycle of town centre (based on a typical cyclist's speed of 12 mph).

Residents should therefore consider using a bicycle as a 'normal' everyday activity for that short journey to

**Work**  
**Shopping**  
**School**  
**Railway Station**  
**Leisure Facilities**

in addition to those trips used solely for leisure purposes.

As stated on page 6, one return trip by bicycle of 5km each way every working day can save up to 0.82 tonnes of carbon dioxide per year equivalent to 8.4% of a typical individual's total carbon footprint.

Cycling is a safe, normal and enjoyable activity for people of all ages, backgrounds and abilities and this is demonstrated in Bedford and Kempston by the number of residents already cycling and increasingly cycling on a regular basis.

CCNB counts this summer in the town centre and the railway station have shown increases of 10% and 6% respectively over summer 2014. There is however still scope for further increases over the coming years.

Cycling is the most inexpensive form of independent door to door transport, apart from walking, with no fuel or parking costs and low cost maintenance. It is also convenient, extremely healthy and promotes social interaction making communities more pleasant for all residents.

Every additional resident cycling is one more healthier person and one less motor vehicle contributing to global warming, congestion, noise and air pollution.

# Benefits of a Bicycle

no need to pay for fuel, parking,  
road tax or car insurance...hurray!

faster and easier than walking

it feels like flying

shapes up that posterior

puts a huge grin on your face

zero  
emissions

slows climate change

whizzes past traffic jams

it's as  
quiet as  
a mouse

gives you  
legs of steel

reduces stress, increases wellbeing and  
means you can have that extra biscuit

the Earth sends a little extra  
love to those on bicycles!





## What else does air pollution cause?

Pollution caused by emissions, primarily from motor vehicles, not only affects the climate but also the health of people. A paper published by the government in September claimed that pollution across the UK is linked to at least 52,500 premature deaths a year, that is, 9% of all deaths.



*An appropriate 2007 cartoon by Australia's Michael Leunig*

Motor vehicles, particularly diesel types which currently represent 50% of those sold, as well as emitting the main greenhouse gas, carbon dioxide, also pump out into the atmosphere nitrogen dioxide and sooty particulates now deemed to be a danger to public health. The levels of these types of pollutants have increased over the last two decades and has resulted in a significant increase in people suffering from asthma type problems as well as contributing to a number of cancers.

As mentioned previously, cycling can only contribute a small amount to help save the planet. Nevertheless at a local level the more people cycling for short distances and the resultant lower volume of motor vehicles would have an enormous effect on reducing the emissions contributing to this type of problem.

More people cycling would also make people more healthier by helping to tackle the other health issues of our time; obesity, diabetes and heart diseases.

As stated previously every new person cycling is one less motor vehicle causing congestion and air and noise pollution.



## Bedford Pollution

Under the Environment Act of 1995 local authorities are required to review air quality in their area and in places where air quality limits are exceeded, they have to designate Air Quality Management Areas (AQMAs) where they have to work towards certain air quality objectives. An air quality action plan, describing the pollution reduction measures, must then be put in place.

Bedford has had an AQMA for the whole of the town centre area since 2009 due to the presence of high levels of nitrogen dioxide resulting from heavy levels of through traffic. It has two continuous monitors at two locations, High Street and Prebend Street, and 46 sites monitoring annual means, 30 to 67% of which have given values exceeding national targets over the last five years.

There are also current concerns along Amphill Road with the increase of traffic from the Wixams and the new superstore.

It is therefore imperative that as much traffic as possible is removed from the central area including the High Street and Greyfriars not only for health reasons but to revitalise the economy of the town centre.

The solution however is not just for Bedford Borough Council. It is the responsibility of all individuals to seriously consider changing their mode of transport for short journeys to cycling, walking or public transport.

## Chinese Pollution Solution

In 2013 north-east China suffered its worst smog for some time with particulate levels soaring to 1,000 micrograms per cubic metre against the World Health Organisation's recommended level for daily exposure of just 25.



Many people came up with designs to try and change the situation. One such person was Beijing based UK artist, Matt Hope. He developed a prototype air purifying bicycle out of a mesh rubbish bin, a fighter pilot mask, a moped helmet and a pedal powered wind generator.

A short video on the bike can be seen on:

<https://www.youtube.com/watch?v=UCJQ3NsDUYc>



*New Britannia 'Garibaldi' bridge across River Great Ouse*





*New underpass on Bromham Road end of A4280/A6 link  
currently under construction*

# Cycling Campaign for North Bedfordshire



## Our Vision

To see Bedford as a

**‘Town of Cyclists’  
&  
‘Cycle Friendly Communities’**

## Objectives

- ♦ To promote, encourage and support cycling as an important means of transport and recreation.
- ♦ To encourage consideration of the needs of cyclists in all aspects of transport planning and management, access issues and recreational use.



E-mail: [ccnb@ccnb.org.uk](mailto:ccnb@ccnb.org.uk)

Website: [www.ccnb.org.uk](http://www.ccnb.org.uk)

Promotional website: [www.cyclebedford.org.uk](http://www.cyclebedford.org.uk)